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Patentanmeldung Nr. Patent application No. Demande de brevet n°

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Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
p.o.

R C van Dijk

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(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.
If no title is shown please refer to the description.
Si aucun titre n'est indiqué se referer à la description.)

A beverage making device having protrusions at the upper wall of the brewing chamber

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A beverage making device having protrusions at the upper wall of the brewing chamber

The invention is related to a beverage making device comprising a brewing chamber for enclosing a pad containing a substance from which the beverage is brewed, the brewing chamber having an upper wall with one or more holes through which heated water can enter into the brewing chamber, whereby said upper wall can hinge from a substantial horizontal brewing position, whereby the upper wall is a portion of the wall of the brewing chamber, to an open position, whereby the pad can be removed from the brewing chamber.

Such device is described in WO-A-01/15582. The described device comprises a water reservoir and means for heating the water and pumping it to the holes in the upper wall of the brewing chamber, so that the heated water is entering the brewing chamber under pressure. The brewing chamber is filled with a pad containing a substance, for example ground coffee, and the heated water will pass through the pad, so that the coffee is extracted. After the extraction process, the liquid (coffee) leaves the brewing chamber through an outflow opening in the bottom of the brewing chamber and arrives in a liquid receiving chamber. The liquid receiving chamber comprises an outflow tube extending outside the device, so that the brewed liquid (coffee) can be caught by one or by two cups. The portion of the device comprising the upper wall of the brewing chamber can hinge upwardly with respect to the stationary part of the brewing chamber to give access to the brewing chamber, so that a new pad can be placed for a next extraction process. In the upward position of said portion, the part of the device comprising the side wall and the lower wall of the brewing chamber (said stationary part) and the liquid receiving chamber can be removed from the device, for example to clean that part or to replace the part by another similar part, whereby the brewing chamber is larger, so that two pads can be placed in it in order to brew enough beverage for two cups in stead of one cup.

By means of the device a beverage can be made by an extraction process, for example to produce coffee, or by a dissolving process, for example to produce a chocolate drink. In case of an extraction process, the extracted substance will remain in the pad and the pad with the extracted substance must be removed out of that chamber afterwards. In case of

a dissolving process, the substance in the pad will disappear during the brewing process, and the empty pad must be removed.

In practice it has appeared that the wet pad tends to stick to the upper wall when that upper wall is hinged to its open position. This is especially the case when two pads are placed in the brewing chamber, then the upper pad sticks to the upper wall, while the lower pad remains in the stationary part of the brewing chamber. Of course the pad can be removed by hand from the upper wall in its open position, but it is easier to remove the pad or the pads from the stationary part of the brewing chamber. Furthermore the user of the device expects that the pad remains in the stationary part when he or she opens the brewing chamber, and therefore the user may have no attention for a pad sticking to the upper wall.

The object of the invention is to provide a beverage making device as described above, whereby the pad or, in case two pads are present, both pads remain always in the stationary part of the brewing chamber when that chamber is opened.

To accomplish that objective, a substantial part of the surface of said upper wall is provided with protrusions having a height of more than 0.5 mm, whereby the distance between each two neighboring protrusions is less than 12 mm, preferable less than 10 mm. Said substantial part is preferably more than 50% of the surface of said upper wall, and in a preferred embodiment more than 75%. The protrusions can have the form of studs having more or less a cylindrical shape. The protrusions prevent the pad from sticking to the upper wall when the upper wall is hinged upwardly.

The device as disclosed in WO-A-01/15582 is provided with six protrusions at the surface of the upper wall of the brewing chamber, which protrusions are located at large distances from each other. In practice it has appeared that the pad tends to stick to the hinging upper wall in the disclosed device, despite of the presence of the protrusions. However, the tendency to stick can be decreased when certain dimensions of the protrusions are applied.

In one preferred embodiment the distance between each two neighboring protrusions is less than 6 mm, and preferably the height of the protrusions is more than 0.7 mm, more preferably more that 1 mm.

In one preferred embodiment the transverse section of the protrusions (i.e. the section parallel to the plane of the upper wall) is substantial circular, with a diameter between 0.5 mm and 3 mm, preferable between 1 mm and 2 mm.

Preferably, the distance between each two neighboring protrusions is less then eight times the height of the protrusions, preferably less then five times the height of the protrusions. The higher the protrusions are, the larger the distance between the protrusions can be.

In one preferred embodiment at least a portion of the side wall of a protrusion extends under an angel of more than 60°, preferably more than 75° relative to the plane of said upper wall, and preferably a portion of said protrusions is substantial cylindrical.

In another preferred embodiment the protrusions are ribs on the surface of the upper wall. That can be straight ribs, but the ribs may also be concentrically circular ribs. The ribs may also have the shape of arcs (parts of a circle) or so.

To achieve a good access to the brewing chamber when that chamber is opened, said upper wall can hinge over more than 60°, preferably more then 70°, more preferably more than 80°.

In one preferred embodiment a removable part comprising the part of the wall of the brewing chamber other then said upper wall is a portion of a removable part, said removable part can be taken out of the device in order to clean the brewing chamber, or to remove the pad.

The invention also relates to a method for making a beverage by means of a beverage making device, whereby a pad containing a substance from which the beverage is to be brewed is placed in a brewing chamber, the brewing chamber having an upper wall with one or more holes through which heated water enters into the brewing chamber, whereby, after the brewing process said upper wall is hinged from a substantial horizontal brewing position, whereby the upper wall is a portion of the wall of the brewing chamber, to an open position, whereby the pad is removed, whereby a substantial part of the surface of said upper wall is provided with protrusions having a height of more than 0.5 mm, and whereby the distance between each two neighboring protrusions is less than 12 mm, so that the pad remains in the brewing chamber when the upper wall is hinged in its open position.

The invention will now be explained by means of a description of an embodiment of a device for making coffee, in which reference is made to the drawing, in which:

Fig. 1 is a sectional view of a portion of the device,

Fig. 2 shows the device with the brewing chamber in open position,

Fig. 3 is a sectional view of the upper wall of the brewing chamber,

Fig. 4 is a bottom view of the upper wall according to Fig. 3, and

Fig. 5 is a top view of the upper wall according to Fig. 3.

Fig. 1 shows the relevant part (i.e. the uppermost portion) of a device for making coffee. The other part of the device, which is not shown, comprises a water container and means for heating the water and pumping a predetermined quantity of the heated water through tube 2 to five holes 3 in the upper wall 4 of the brewing chamber 5. In the sectional view of Fig. 1 only one hole 3 in the upper wall 4 is shown. Brewing chamber 5 has a substantial cylindrical shape and a disc-like pad (not shown) containing for example ground coffee fits in it.

The lower wall 6 of the brewing chamber 5 is provided with a profile 7 to form canals for allowing the brewed coffee to arrive at the central part of the bottom of the brewing chamber 5, so that the liquid can flow to the outflow opening 8 in the lower wall 6. The brewed coffee is collected in a liquid receiving chamber 9, and subsequently guided through two outflow tubes 10 extending outside the device to a location where the brewed coffee can be caught by one or by two cups (not shown). There are two outflow tubes 10 parallel to each other, so that each outflow tube 10 can guide brewed coffee to one of two cups, whereby the cups are standing near each other. In case one cup is to be filled, both outflow tubes 10 guide the brewed coffee to the same cup. Because the two outflow tubes 10 are located at both sides of the plane of the drawing, they are not presented in a sectional view in Fig. 1 and in Fig. 2.

The brewing chamber 5 as shown in Fig. 1 has a dimension to accommodate a pad containing ground coffee for brewing coffee for one cup. In case two cups of coffee have to be brewed, the part 11 of the device can be replaced by another part 11, which other part (not shown) comprises a thinner lower wall 6, so that the height of the brewing chamber 5 is larger, whereby the brewing chamber 5 can accommodate two pads containing ground coffee, or a bigger pad, to brew enough coffee for two cups.

As shown in Fig. 2 by arrow 12, the device can be opened by hinging the upper part 13 of the device around axis 14. The upper wall 4 of the brewing chamber 5 is connected to said upper part 13, so that the brewing chamber 5 becomes accessible after opening. Then a used pad can be removed and/or a new pad can be placed in the brewing chamber 5. In case the next brewing process is to be performed with two pads, the open

position of the brewing chamber allows the replacement of part 11 of the device by another one, having a larger brewing chamber 5. To enable the hinging movement of the upper part 13, the tube 2 is made of flexible material.

In the opened position of the device, as shown in Fig. 2, the part of the device comprising the brewing chamber 5 (except for its upper wall 4), the liquid receiving chamber 9 and the outflow tubes 10, is removable from the device, so that the part can be cleaned.

The upper wall 4 of the brewing chamber 5 has a disk-like shape and is clamped in a connecting piece 16 comprising a central water duct 17 which is connected to tube 2, as is shown in Figs. 1 and 2. Between the upper wall 4 and the connecting piece 16 there is a distribution plate 18, having a disk-like shape and comprising recesses in the material to guide the heated water coming from the tube 2 and the water duct 17 to the five holes 3 in the upper wall 4. Around the connecting piece 16 there is a sealing ring 19 to provide for a watertight sealing between the removable part 11 and the upper wall 4 when the brewing chamber 5 is closed (Fig. 1).

At the lower side of the upper wall 4, the main portion of the surface of the upper wall 4 is provided with protrusions 21. In this example, the height of the protrusions 21 is about 1 mm, and the distance between the protrusions 21 is about 4 mm.

Fig. 3 is the same sectional view of the upper wall 4 of the brewing chamber 5 as is shown in Figs. 1 and 2, however, at a larger scale. The upper wall 4 is made of plastic material. At its upper side, the upper wall 4 is provided with a ring-like protrusion 22, which protrusion can surround the distribution plate 18 and which protrusion 22 clamps in connecting piece 16.

Fig. 4 is a view of the lower side of the upper wall 4 and shows the distribution of the protrusions 21 over the lower side of the upper wall 4. Fig. 4, and also Fig. 5, shows furthermore the location of the five holes 3 in the upper wall 4.

Fig. 5 is a view of the upper side of the upper wall 4. The ring-like protrusion 22 is provided with a flat (straight) portion 23 corresponding with a flat portion at the edge of distribution plate 18, so that said distribution plate fits in only one position between the upper wall 4 and the connecting piece 16.

Due to the protrusions 21 at the lower side of the upper wall 4 of the brewing chamber 5, the wet pad shall not stick against the upper wall 4 when the brewing chamber 5 is opened.

The embodiment as described above is only an example; a great many other embodiments are possible, including embodiments whereby the protrusions 21 at the lower side of the upper wall 4 of the device have a different shape.

CLAIMS:

1. A beverage making device comprising a brewing chamber (5) for enclosing a pad containing a substance from which the beverage is brewed, the brewing chamber (5) having an upper wall (4) with one or more holes (3) through which heated water can enter into the brewing chamber (5), whereby said upper wall (4) can hinge from a substantial horizontal brewing position, whereby the upper wall (4) is a portion of the wall of the brewing chamber (5), to an open position, whereby the pad can be removed from the brewing chamber (5), characterized in that a substantial part of the surface of said upper wall (4) is provided with protrusions (21) having a height of more than 0.5 mm, whereby the distance between each two neighboring protrusions (21) is less than 12 mm.

2. A beverage making device as claimed in claim 1, characterized in that the distance between each two neighboring protrusions (21) is less than 6 mm.

3. A beverage making device as claimed in any one of the preceding claims, characterized in that the height of the protrusions (21) is more than 0.7 mm, preferably more that 1 mm.

4. A beverage making device as claimed in any one of the preceding claims, characterized in that the transverse section of the protrusions (21) is substantial circular, with a diameter between 0.5 mm and 3 mm, preferable between 1 mm and 2 mm.

5. A beverage making device as claimed in any one of the preceding claims, characterized in that the distance between each two neighboring protrusions (21) is less then eight times the height of the protrusions (21), preferably less then five times the height of the protrusions (21).

6. A beverage making device as claimed in any one of the preceding claims, characterized in that at least a portion of the side wall of a protrusion (21) extends under an angel of more than 60°, preferably more than 75° relative to the plane of said upper wall (4).

7. A beverage making device as claimed in any one of the preceding claims, characterized in that a portion of said protrusions (21) is substantial cylindrical.

8. A beverage making device as claimed in any one of claims 1-6, characterized in that the protrusions (21) are ribs on the surface of the upper wall (4).

9. A beverage making device as claimed in any one of the preceding claims, characterized in that said upper wall (4) can hinge over more than 60°, preferably more then 70°, more preferably more than 80°.

10. A beverage making device as claimed in any one of the preceding claims, characterized by a removable part comprising the part of the wall of the brewing chamber (5) other then said upper wall (4), said removable part can be taken out of the device in order to clean the brewing chamber (5) or to remove the pad.

11. A method for making a beverage by means of a beverage making device, whereby a pad containing a substance from which the beverage is to be brewed is placed in a brewing chamber (5), the brewing chamber (5) having an upper wall (4) with one or more holes (3) through which heated water enters into the brewing chamber (5), whereby, after the brewing process said upper wall (4) is hinged from a substantial horizontal brewing position, whereby the upper wall (4) is a portion of the wall of the brewing chamber (5), to an open position, whereby the pad is removed, characterized in that a substantial part of the surface of said upper wall (4) is provided with protrusions (21) having a height of more than 0.5 mm and, whereby the distance between each two neighboring protrusions (21) is less than 12 mm, so that the pad remains in the brewing chamber (5) when the upper wall (4) is hinged in its open position.

ABSTRACT:

A beverage making device comprising a brewing chamber (5) for enclosing a pad containing a substance from which the beverage is brewed. The brewing chamber (5) has an upper wall (4) with one or more holes through which heated water can enter into the brewing chamber (5). The upper wall (4) can hinge from a substantial horizontal brewing position, whereby the upper wall (4) is a portion of the wall of the brewing chamber (4), to an open position, whereby the pad can be removed from the brewing chamber (5). A substantial part of the surface of said upper wall (4) is provided with protrusions (21). The protrusions have a height of more than 0.5 mm, and the distance between each two neighboring protrusions (21) is less than 12 mm.

Fig. 1

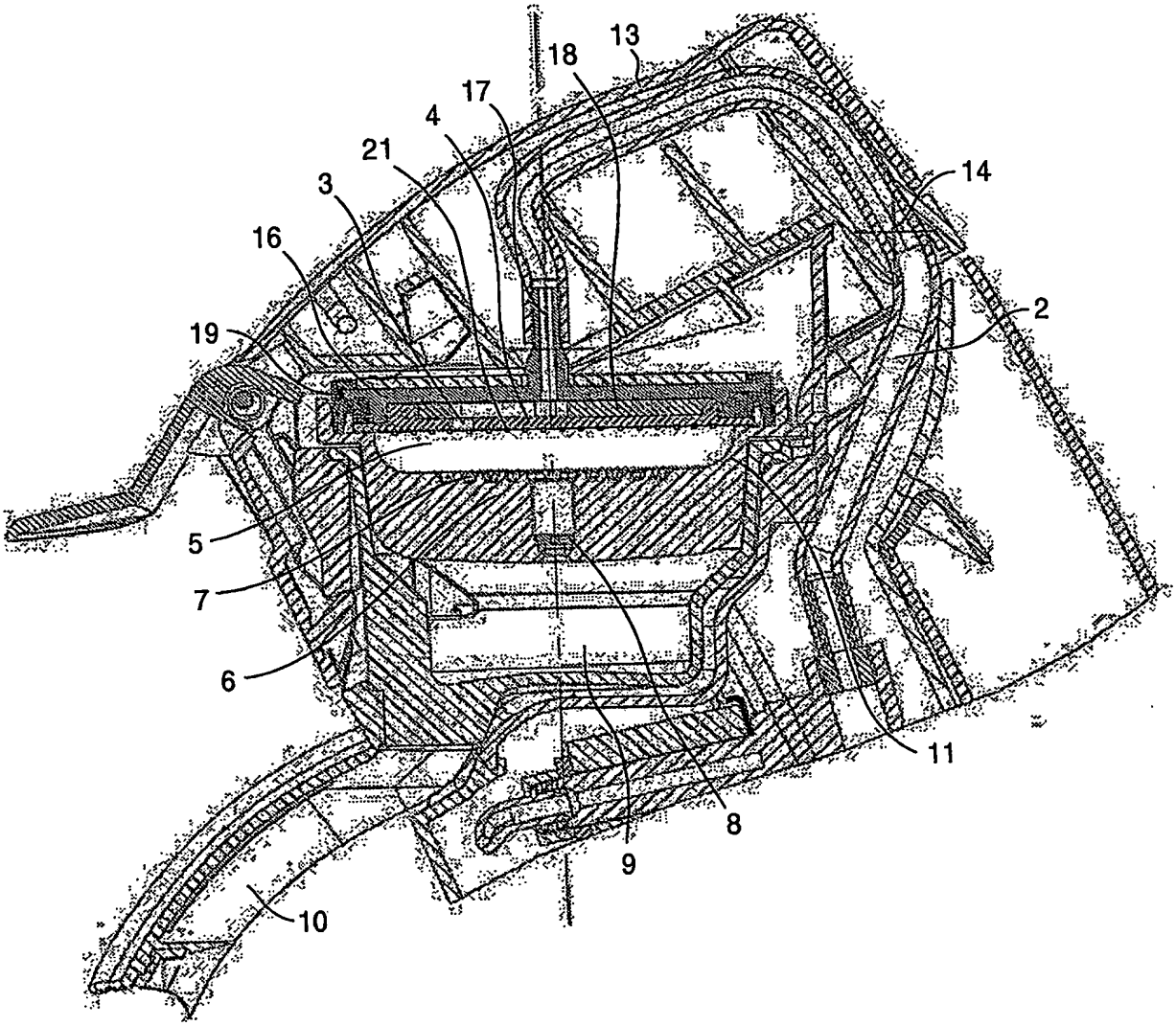

FIG.1

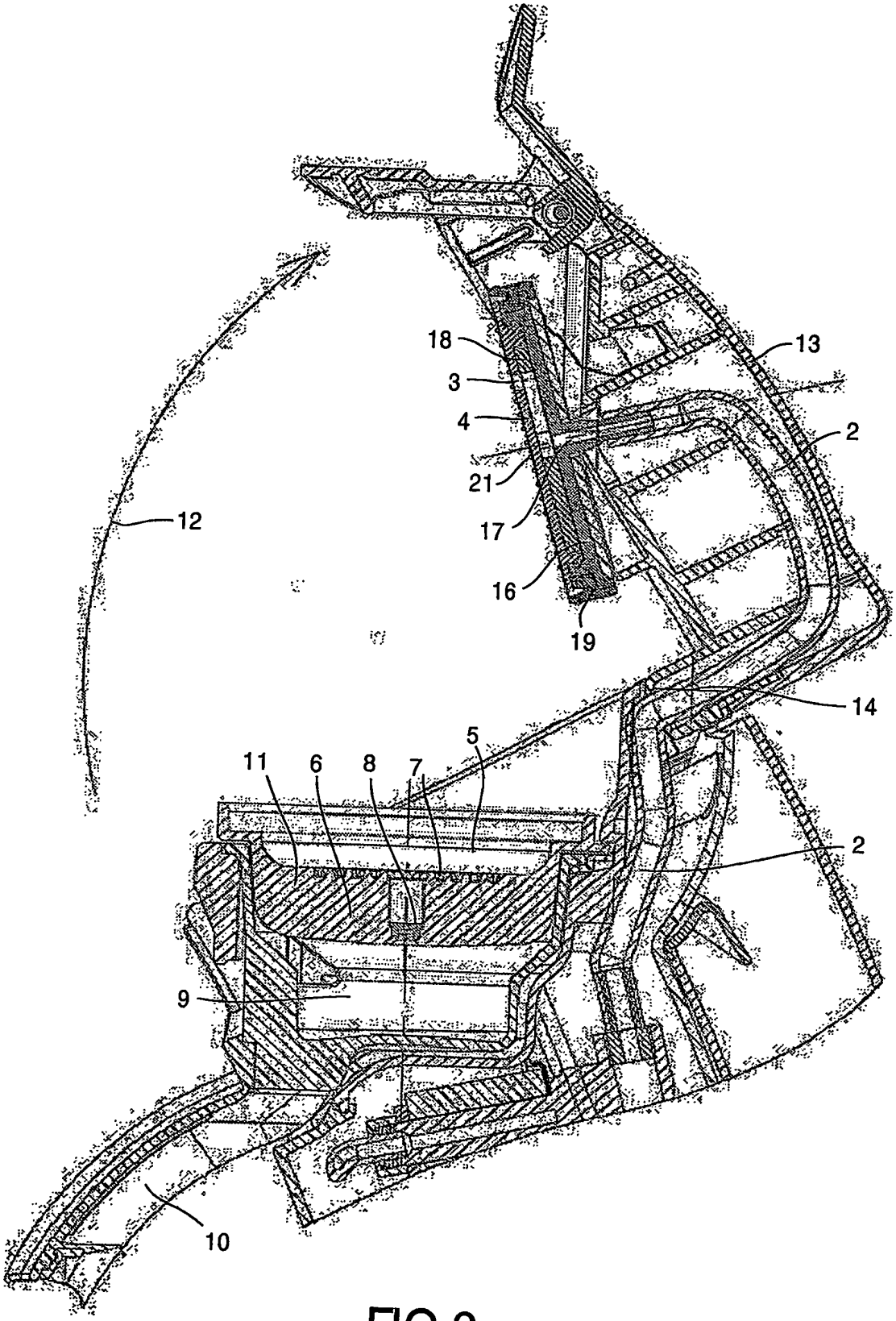

FIG.2

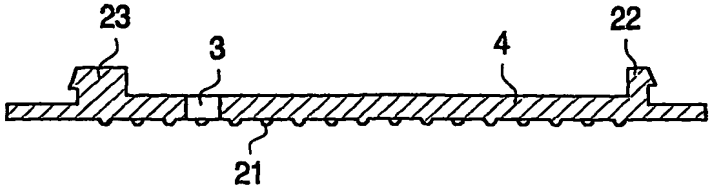

FIG. 3

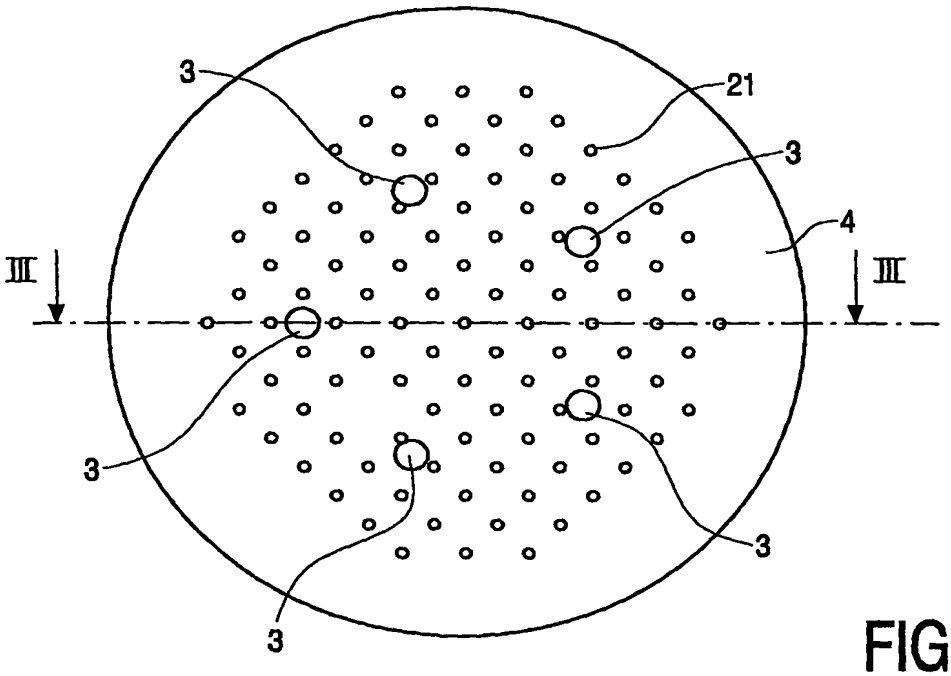

FIG. 4

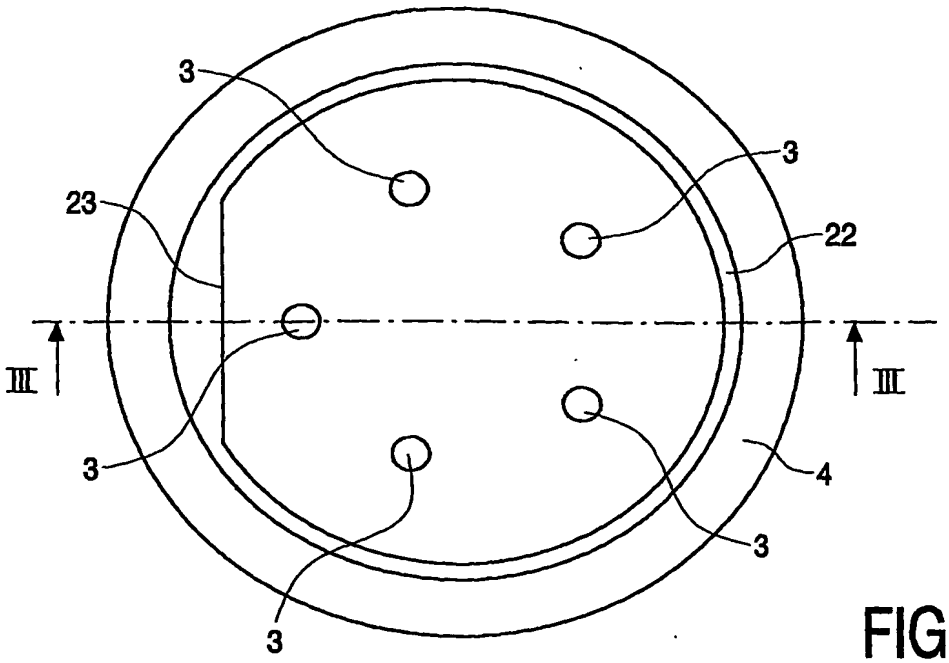

FIG. 5